IMPLANTABLE HEART ASSIST SYSTEM AND METHOD OF APPLYING SAME

Abstract of the Disclosure

An extracardiac pumping for supplementing the circulation of blood, including the cardiac output, in a patient without any component thereof being connected to the patient's heart, and method of using same. One embodiment of the extracardiac system comprises a pump implanted subcutaneously at or about the patient's femoral artery in a minimally-invasive procedure, wherein the pump is powered by a battery, and means for charging the battery extracorporeally, whereby the pump draws blood through an inflow conduit fluidly coupled to the patient's femoral artery via a subcutaneous anastomosis connection, and discharges blood through an outflow conduit fluidly coupled to a second peripheral artery via a subcutaneous anastomosis connection. The pump may be operated continuously or in a pulsatile fashion, synchronous with the patient's heart, thereby potentially reducing the afterload of the heart. The conduits can be housed in a multi-lumen catheter and a reservoir may be provided fluidly communicating with the inflow conduits. The system may also comprise means for keeping the blood travelling extracorporeally within the system at or near body temperature. If desired, the present system may be carried directly on the patient with a belt or a shoulder strap. A method of using the present invention includes the steps of adjusting outflow from the pump to optimize the mixing of red blood cells in the aorta and thereby enhance oxygen delivery to tissues by minimizing blood cell concentration in the center of the aorta.

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